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The further development of *Cucurbitaria platani* was not followed out. Secondary pycnidia began to develop on the slide in extraordinarily large numbers. The mycelium gradually became transformed into a stroma, the hyphæ continually growing darker, more closely interwoven and smaller celled. A stroma of this kind was placed with the pycnidia upon a fresh *Platanus* branch upon a place where the bark was injured. The stroma soon became completely covered with pycnidia. The peripheral hyphæ penetrated the bark, from which only a few pycnidia followed. After a long time perithecia could also be seen; but they were so few that any investigations were not to be thought of.

The ascospores of *Cucurbitaria platani* were sown upon another branch. It remained intact for a long time, but after it was apparently dead and had begun to decay pycnidia broke out upon the cut surfaces and leaf scars, in short, wherever the bark was injured. It may be concluded from this that *Cucurbitaria platani* is not a parasite but merely a saprophyte. Cultures upon leaves gave no reliable results.

MYCOLOGICAL NOTES.

BY GEORGE MASSEE.

(Plate XIV.)

1. **TREMELLA TREMELLOIDES**, (Berk.) Mass. (Fig. 1). Tremelloid; lobes fasciculate, *elongated, suberect*, almost free to the base or variously united, *compressed*, springing from a small contracted base, *surface scabrid*, dull orange; spores elliptic-oblong with a minute oblique apiculus at the base, 11-12 by 5 μ .

Sparassis tremelloides, Berk., Grev. Vol. II, p. 6; Sacc. Syll., Vol. No. 7926.

On wood, Lower Carolina. (Type in Herb. Berk., Kew, No. 4088). Forming large tremelloid tufts, always springing from a very small basal portion, which penetrates the matrix; lobes suberect, 3-4 inches high in well grown specimens, sometimes smaller, in some specimens variously plicate and almost free to the base; in others the lobes are united laterally and form a gyrose tuft, always much compressed. The distinctly scabrid surface is very characteristic, and is due to thickly scattered papillæ, which give a very harsh feel to dry specimens. Basidia large, sterigmata developed in succession.

STELLA, Mass. (*nov. gen.*).

(Fig. 2.)

Peridium consisting of two distinct layers united at the base only; outer layer thick, splitting in a stellate manner from the apex, inner layer thin, indehiscent; gleba traversed by numerous anastomosing thin tramal plates, which are continuous with the inner wall; columella and capillitium absent; spores forming a powdery mass at maturity.

The present genus occupies an intermediate position between *Scleroderma* and *Geaster*, agreeing with the former in the structure of the gleba, which is broken up into numerous small, irregular cavities by the tramal walls, which become disorganized at maturity, and in the absence of a columella and capillitium, but is generically distinct in having a peridium composed of two separate layers, in which it agrees with *Geaster*, but is again quite distinct from the last-named genus in the total absence of a capillitium, a character which also distinguishes it from *Diplocystis*, *Diploderma*, and *Cycloderma*, if indeed the last-named genus is founded on anything more than immature species of *Geaster* collected before the splitting of the outer peridium.

2. *STELLA AMERICANA*, Mass. (*n. s.*). (Fig. 2.) Globoso-depressed, outer layer of peridium thick, *smooth, ochraceous-brown*, splitting from the apex in a stellate manner into 4-6 acute subequal segments; inner layer smooth, thin, *pale brown*, becoming disorganized above when mature; mass of spores, *umber*; walls of trama whitish, disappearing; spores globose, *minutely warted*, 6-7 μ in diameter. On the ground, Lower Carolina. (Type in Herb. Berk., Kew, along with *Scleroderma geaster*); from 1-2 inches in diameter, growing singly or sometimes two together.

3. *TRICHOSPORIUM CURTISII*, Mass. (Fig. 3.) Broadly effused, compact, *blackish-purple*, sometimes with a tinge of brown; hyphæ pale, septate, branched, combined into vein-like anastomosing strands; gonidia very profuse, *purple-brown in the mass, smooth, broadly elliptical*, rather variable in size, averaging 5 by 3.5-4 μ .

Reticularia affinis, B. & C., Linn. Soc. Journ., Vol. X, p. 347; Sacc. Syll., Vol. VII, Part I, No. 1426.

Reticularia atro-rufa, B. & C., Linn. Soc. Journ., Vol. X, p. 347; Sacc. Syll. No. 1428.

Reticularia venulosa, B. & C., Linn. Soc. Journ., Vol. X, p. 347; Sacc. Syll. No. 1433 (called by mistake *Reticularia venosa*).

On bark, wood, moss, etc. Lower Carolina, Cuba, Ceylon. (All types in Herb. Berk., Kew.) Superficially resembling a *Reticularia*, but there is no cortex, the surface being perfectly naked. Forming compact cakes, 3-4 inches across and half an inch thick, consisting of a dense mass of hyphæ spreading centrifugally in the form of irregularly anastomosing vein-like strands, produced by the agglutination of hyphæ, brought about by the partial disorganization of their walls. Hyphæ septate, with numerous clamp connections, sometimes minutely scabrid with particles of lime; conidia acrogenous, produced in great profusion, becoming agglutinated into a compact cake along with the hyphal portion of the mass.

4. *TRICHOSPORIUM PHYRRHOSPORIUM*, (Berk.) Mass. (Fig 4.) Effused, pulvinate, compact, *deep reddish brown*, hyphæ 2-2.5 μ thick, pale yellow, septate; conidia very profuse, produced on the tips of short lateral branches, *globose, bright brown, smooth*, wall very thick, 6-7 μ in diameter.

Reticularia phyrrhospora, Berk., Journ. Linn. Soc., Vol. X, p. 347 Sacc. Syll., No. 1432.

Reticularia rubra, Ayres, in Herb. Berk.

On dead trees. Mauritius, Cuba. (Type in Herb. Berk.) Forming pulvinate masses 2-3 inches long by 1 inch or more high, seated on a broad base, convex above, sometimes irregular in outline. The conidia are produced on the tips of lateral or terminal branches, the apical cells of which become inflated, and from this inflated apical portion of the terminal cells the conidia are produced; eventually, the inflated apical cell becomes colored like the conidia, and falls away from the colorless supporting hypha; these latter are the bodies referred to by Berkeley as shortly stipitate spores.

5. TRICHOSPORIUM APIOSPORIUM, (B. & Br.) Mass. (Fig. 5.) Broadly effused, *fulvous*, hyphæ agglutinated into radiating dendritic strands; conidia *elliptical, minutely verrucose*, almost colorless, 8-9 by 5 μ .

Reticularia apiospora, B. & Br., Journ. Linn. Soc., Vol. XI, p. 82; Sacc. Syll., 1427.

On dead wood. Ceylon, Lower Carolina. (Type in Herb. Berk.) Broadly effused, thin; hyphæ agglutinated into irregularly branched vein-like radiating strands. The conidia spring from subpyriform apical cells as in *T. phyrrhosporium*.

6. BADHAMIA NODULOSA, (Cke. & Bal.) Mass. (Fig. 6.) Sporangia globose, stipitate, wall very thin, almost colorless above, and covered with an irregular scanty white crust of lime, basal portion without lime and beautifully iridescent, becoming irregularly ruptured at maturity; stem longer than sporangium, *weak, often subdecumbent, brown*, attenuated upwards, longitudinally wrinkled, expanding at the base into a small, irregular hypothallus; columella absent; capillitium well developed, flattened, intricately branching nodes large, irregular, *scantily furnished throughout with granules of lime*; spores globose, dingy lilac, *minutely verruculose*, 8-10 μ in diameter.

Physarum nodulosum, Cke. & Balf., in Rav. Fung. Amer. Exs., No. 479.

On Acacia bark. Aiken, S. Carolina (Rav. 2972). (Type in Herb. Kew.) A very distinct and good species of *Badhamia*, hitherto undescribed so far as I am aware. About 1.5 mm. high, stem twice as long as sporangium, weak, usually subprostrate, capillitium dense, with the characteristic flattenings met with in *Badhamia*, and everywhere containing granules of lime, although the quantity is not so great as is usual in the genus. Sparsely scattered, rarely two springing from the same hypothallus.

7. PHYSARUM SCYPHOIDES, Cke. & Balf. (Fig. 7). Sporangia globose or broadly obovate, stipitate, *upper portion of wall whitish*, rough with amorphous lumps of lime, basal portion *bright brown, persistent as a very shallow, irregular cup*; stem about equal to sporangium in length, *bright brown*, erect, usually attenuated upwards, irregularly wrinkled

and often compressed and twisted, expanding at the base into a minute brown hypothallus; capillitium dense, knots of lime white or yellowish, very numerous, large, irregularly branched, connected by short thin portions, *becoming concentrated towards the base of the sporangium to form a columella*; spores globose, lilac-brown, *minutely warted*, 7–9 μ in diameter.

Physarum scyphoides, Oke. and Balf., in Rav. Fung. Amer. Exs., No. 480.

On living leaves, grass, etc. Darien, Ga. (Rav. 2407). (Type in Herb. Kew). A fine species, about 1 mm. high, scattered or gregarious, the upper portion of the sporangium whitish, chalky, with sometimes a suggestion of pink, falling away in patches when mature, and leaving the small, thicker, basal portion in the form of an irregular shallow cup or disc, which, with the character of the sporangium, suggest a leaning toward the genus *Craterium*. It is perhaps a mistake to issue new species in exsiccati before the specific diagnoses have been published.

8. *TILMADOCHÉ GYROCEPHALA*, Rost. (Fig. 8.) Sporangia stipitate irregularly globose or compressed, *variously lobed and lacunose, umbilicate below*, wall thin, at first frosted with minute greenish-yellow granules of lime, dehiscing irregularly; stem equal to or longer than sporangium, attenuated upwards, strongly wrinkled longitudinally, expanding downwards into an irregular hypothallus, *yellow or orange*; columella absent, capillitium well developed, forming a rigid, irregular net-work; *swellings small, fusiform*, containing yellow granules of lime; spores globose, dingy lilac, *minutely verruculose* 9–12 μ in diameter.

Tilmadoche gyrocephala, (Mont.) Rost. Mon., p. 131; Sacc. Syll., No. 1248.

Physarum Schumacheri, Spr., Rav. Fung. Amer. Exs., No. 4778.

Didymium gyrocephalum, Mont., Ann. Sci. Nat., Ser. II, Vol. VII, p. 362; Mont. Syll., No. 1073.

Cribraria straminiformis, Speg., Fung. Arg., pug. II, No. 109.

On twigs, leaves, etc., Brazil; Argentine Republic; S. Carolina.

Scattered or gregarious 1.5 to 2 millimeters high, characterized by the *gyrose* and *lacunose sporangium*, which, judging from the simple, thin stem, is not an æthaliium, as is the case in some species of *Trichia*, *Hemiarcyria* and other genera, where the clustered and fasciculate compound stem proves conclusively the ethaloid nature of the complex sporangium.

KEW, ENGLAND.

DESCRIPTION OF PLATES.

PLATE XIII (after Von Tavel.)

- FIG. 13. *Cucurbitaria platani*, Von Tav.; ascospores $\times 380$.
 14. Formation of sporopycnidium; the spore three days after sowing. $\times 380$.
 15. The same spore five hours later $\times 380$.
 16. The same spore twenty hours later $\times 380$.
 17. Beginnings of pycnidia $\times 600$.
 18. A later stage of the same $\times 600$.
 19. Section through a young pycnidium, the cavity not yet formed $\times 700$.
 20. Section through an older pycnidium $\times 700$.
 21. Section through a fully-formed pycnidium $\times 700$.

PLATE XIV (*G. Massee, del.*)

- FIG. 1. *Tremella tremelloides*, (Berk.) Mass., portion of a plant, natural size.
 1 *a*. Basidia and spores of same $\times 400$.
 2. *Stella Americana*, Mass.; specimen natural size.
 2 *a*. Vertical section of same, natural size; (*a*) outer wall of peridium; (*b*) inner layer.
 2 *b*. Spores of same $\times 350$.
 2 *c*. Spore of same, showing epispore, as seen when $\times 1,200$.
 3. *Trichosporium Curtisii*, Mass.; portion of a specimen natural size.
 4. *Trichosporium phyrrosporium*, (Berk.) Mass.; (*a*) conidia; (*b*) a conidiophore detached from its hypha, all $\times 350$.
 5. *Trichosporium apiosporium*, (B. & Br.) Mass.; conidia $\times 350$.
 6. *Badhamia nodulosa*, (Cke. & Balf.) Mass.; entire specimens $\times 40$.
 6 *a*. Portion of capillitium and spores of same $\times 350$.
 6 *b*. Spore of same $\times 1200$.
 7. *Physarum scyphoides*, Cooke and Balf.; specimens $\times 40$.
 7 *a*. Portion of capillitium and spores of same $\times 350$.
 7 *b*. Spore of same $\times 1200$.
 8. *Tilmadoche gyrocephala*, Rost.; specimen $\times 40$.
 8 *a*. Portion of capillitium and spores of same $\times 350$.
 8 *b*. Spore of same $\times 1200$.

